

TECHNIQUE FOR PROGRAMMING FLOATING-GATE TRANSISTOR USED IN CIRCUITRY SUCH AS FLASH EPROM

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ABSTRACT

The sequence in which the voltages (V_{SL} , V_{DL} , V_{SG} , and V_{CL}) applied to the source/drain regions (S and D), select gate (SG), and (if present) control gate (CG) of a floating-gate field-effect transistor (20) start to change value during a programming operation is controlled so as to avoid adjusting the transistor's programmable threshold voltage toward a programmed value when the transistor is intended to remain in the erased condition, i.e., not go into the programmed condition. With the voltage (V_{SL}) at one source/drain region (S) changing from a nominal value to a programming value, the sequence entails causing the voltage (SG) at the select gate to start changing from a nominal value to a programming-enable value after the voltage at the other source/drain region (D) starts changing from a nominal value to a programming-inhibit value.

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